

1. The Great Pyramid of Giza is the only surviving of the Seven Wonders of the Ancient World. It was built with two million blocks of stone, each weighing two tons.

Write the total weight as an exponential number.

4

2. Simplify: $\frac{8x^4y^8}{2x^7y^3}$

3. Write the following equation in standard form for a linear equation:

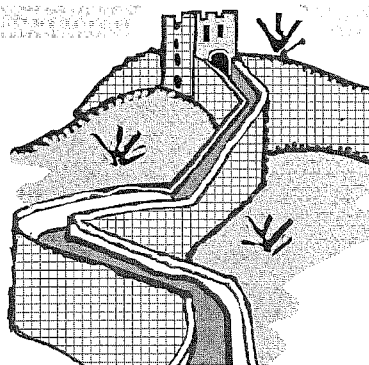
$$44 = y - 50 - 2x$$

4. Solve the system:

$$\begin{aligned} 2x + y &= 16 \\ y + 2 &= x \end{aligned}$$

5. The Great Wall of China was built in 221 B.C. to keep out invading armies. A group of hikers intends to travel the entire distance of the wall—3,948 miles—walking at a rate of two mph for eight hours a day.

At this rate, can they cover the entire distance in three months?



1. What operation should be done first?

$$7(p + 6) - 9 + 3 = 75$$

2. Solve: $(n + 4)^2 - 36 = 0$

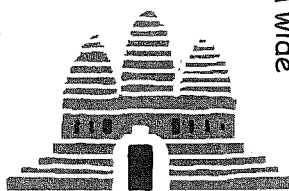
- a. 2 and -2 c. 10 and 2
b. 2 and -10 d. -2 and -10

3. Which expression is equal to six?

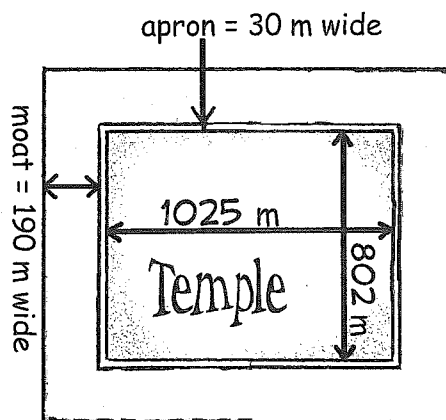
- a. negative seventeen minus negative eleven
b. the product of negative seven and five plus forty-one
c. two to the seventh power divided by two to the third power

4. Evaluate for $p = 6$ and $q = 0.5$.

$$2p^2 - 12q + q^2$$



5. Angkor Wat is a temple that was built in the early 12th Century. It was surrounded by a wall, an apron of lawn 30 m wide, and a moat 190 m wide. Today, its ruins are a prime attraction for visitors to Cambodia.



Find the surface area of water in the moat.

1. Which is true of $(-30)(3)$?

The product is the reciprocal of $\frac{1}{90}$.

The product is the reciprocal of $-\frac{1}{90}$.

The product is the reciprocal of -90 .

2. Evaluate: $(5^6)(5^{-4}) =$

3. The slope of a line passing through $(2, 6)$ and $(5, -1)$ can be found by using which ratio?

a. $\frac{6 - (-1)}{2 - 5}$

c. $\frac{5 - 6}{1 - 2}$

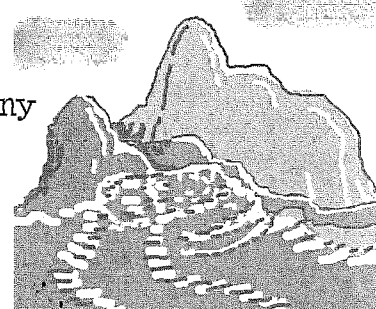
b. $\frac{2 - 5}{6 - 1}$

d. $\frac{6 - 5}{2 - 1}$

4. Simplify: $8a^2 - 4(3a^2 + 9)$

5. Rosa is getting ready to visit Machu Picchu, the ancient Incan fortress city in the Andes Mountains of Peru. About 3,000 steps connect the different levels of the site. To prepare, she is running up the steps to the second floor in her house. Each step has a six-inch rise, and she has climbed 500 steps a day for 30 days.

She wants to climb a total of five miles in 60 days. How many steps a day will she need to climb for the next 30 days to reach that goal?



1. The Alhambra, an ancient fortress in southern Spain, covers an area in square meters that can be described this way: a product of ten to the fourth power and fourteen and two tenths.

Write this expression.

2. Finish the equation to show the commutative property.

$$b^2 + c + a^2b =$$

3. Solve: $-8x + 33 = 5x - 3$

4. Solve for x and graph the solution.

$$x - 7 > -4$$

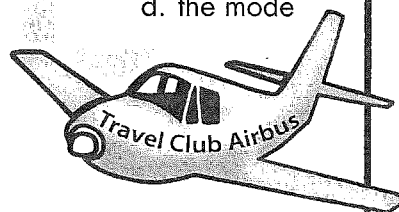


5. The chart shows time spent traveling by each member of a travel club. For the set of data, find . . .

- a. the mean
b. the median
c. the range
d. the mode

Travel Times

16 hours
66 hours
123 hours
13 hours
44 hours
16 hours
87 hours
39 hours
55 hours



1. Solve the proportions.

a. $\frac{4}{m} = \frac{64}{112}$ b. $\frac{3}{11} = \frac{42}{n}$

2. The Colosseum was the largest amphitheater constructed by the Roman Empire. It was completed in 80 AD. How many full decades have passed since that time?

3. Is the equation in standard form of a linear equation?

$$5x - y = 12$$

4. It took 20,000 workers 22 years to build the Taj Mahal, an elegant mausoleum in India. Assume that each worker worked an average of ten hours a day, three hundred days a year. The total number of worker hours on this project would be closest to:

- ☐ 4.4×10^7 ☐ 13.2×10^8
☐ 1.0×10^6 ☐ $2,000^3$
☐ 1.32×10^9 ☐ 4.4×10^8

5. Challenge Problem

The Great Pyramid has a square base. Each side of the base has a length of 755.5 feet. If the volume of the Great Pyramid is 85,600,000 cubic feet, what is its approximate height?

Use the formula for the volume of a pyramid.

$$V = \frac{1}{3}Bh \text{ (where } B = \text{area of the base)}$$

When you've solved this problem, see if you can solve the **riddle of the Sphinx**.

THE GREAT SPHINX, WHICH SITS NEAR THE GREAT PYRAMID, IS A MAJOR ATTRACTION AT GIZA, EGYPT. IT IS A HUGE CREATION WITH THE HEAD OF A HUMAN AND THE BODY OF A LION. THERE WERE NUMEROUS SPHINXES IN EGYPT AND GREECE. ACCORDING TO MYTHOLOGY, A SPHINX SAT OUTSIDE OF THEBES AND ASKED A RIDDLE OF EVERYONE WHO PASSED BY:

What goes on four legs in the morning, on two legs at noon, and on three legs in the evening?

